

THREE NEW ALPINE ORTHOPTERA FROM CENTRAL ASIA.

By

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That the entirely unexplored Alpine Orthopteran fauna of the great mountainous systems of the Central Asia (Kashmir, Tibet, etc.), includes many unknown and even unexpected forms, is evidenced by the fact of my discovery of three very peculiar new genera and species of these insects in the British Museum collection where the Central Asiatic Orthoptera are represented by only a few casual specimens. I hope, therefore, that the entomologists who have the chance of collecting in those countries, will pay more attention to grasshoppers, locusts, crickets and mantids, which are usually neglected as being "uninteresting". In fact, the collecting and preserving (in paper packets, or amongst layers of cotton-wool) of these insects is very easy and takes but very little time and trouble, and the results are always very gratifying. The author should be very glad to get for identification all collections of Orthoptera from Central Asia, those from high mountains and from deserts* being the most interesting; the collections may be sent to the British Museum (Natural History), London, Cromwell Road, S. W. 7, and will be promptly worked out and returned, except the types of new forms and duplicates wanted for the Museum.

The types and paratypes of the insects described in this paper are in the British Museum collection.

Sub-family: *Locustidae*.

1. *Orinhippus*, gen. nov.

♀. Resembling somewhat in its habitus to *Sphingonotus* but with very small, lateral elytra and wings. Antennae sub-equal to the head and pronotum together, very slightly widened apically; their bases are scarcely above the line connecting the lower edges of the eyes. Head not thicker than the pronotum in its fore part; face somewhat reclinate; frontal ridge distinctly prominent, coarsely rugose, with its margins raised, feebly divergent from fastigium towards the middle ocellum, suddenly and strongly constricted below it, then sub-parallel but less distant than above the ocellum; fastigium of the vertex sloping, forming an obtuse but not rounded angle with the frontal ridge, longer than it is broad, with the surface impressed; temporal foveolæ very small, irregular; occiput globose, short; eyes slightly prominent sideways but not at all upwards, short-oval, scarcely higher than long. Pronotum on the same level as the head, distinctly narrowed anteriorly but without any constriction (*i.e.*, conical); its disc feebly convex; median keel linear, interrupted by two transverse sulci; the second (typical) sulcus placed about the middle of the pronotum; lateral keels slightly indicated by the small elongate ridges at the fore margin, not reaching the first sulcus; fore margin straight; hind margin very widely rounded; lateral lobes a little higher than long, narrowed downwards; their fore angle obtuse; lower margin nearly straight, oblique; hind angle obliquely truncate; hind margin oblique, slightly excavate. Prosternum somewhat incrassate. Mesosternal lobes distinctly transverse, with inner margins and hind angles rounded;

* As far as I know, *not a single specimen* of Orthoptera from the Indian Desert, for instance, reached the hands of a specialist, and our knowledge of the fauna of Baluchistan, Afghanistan &c. is worse than fragmentary.

mesosternal interspace about one half again as broad as one of the lobes. Metasternal interspace sub-equal in width to one of the mesosternal lobes. Elytra perfectly lateral, lanceo-shaped, extending a little beyond the hind margin of the metanotum; wings shorter than elytra. Tympanal organ open, but the tympanum seems to be not membranaceous, and the organ is probably not functioning. Abdomen distinctly conical, because the mesonotum, metanotum and the first abdominal tergite are thickened; a linear median keel runs all through the abdominal tergites, gradually lowering backwards. Fore and middle legs short. Hind femora not reaching the apex of the abdomen, moderately thickened basally and gradually narrowed apically. Hind tibiae with nine outer and eleven inner spines, without an outer subapical spine; apical spurs short. Valvæ of the ovipositor short, rather thick, recurved apically; the lower ones with obtuse teeth.

Genotype: *Orinhippus tibetanus*, sp. n.

Orinhippus tibetanus, sp. n.

♀. Greyish-ochraceous (has been preserved in spirit),* with greyish and brownish dots. Face rugulose and spotted with brownish. Antennæ with alternate pale and brownish rings. Fastigium and occiput spotted with brownish. Pronotum in the prozona rugulose, with brownish spots, in the metazona densely punctured, ochraceous; hind margin with brownish streaks along it. Elytra of the general coloration, with indefinite greyish spots. Legs darker than the body, marmorated and fasciated by brown. Hind femora with two feeble dark fasciæ on the upside, and with two still more indistinct oblique fasciæ on the outer side; the second (subapical) upper fascia extends also in on the inner side where it is somewhat better expressed; the knees are brownish all over, with the lobes paler, brown-spotted. Hind tibiae pale with the base, a fascia before the middle and the apical fourth part, brownish; spines and spurs with brown apices. Length of body 18 mm.; pronotum 4 mm.; elytra 2.5 mm.; hind femora 9 mm.

Described by a female from Gyantse, 13,000 feet, June, 1904, Tibet Expedition, H. J. Walton; three paratype females are from the same locality.

The insect is somewhat alike in its habitus to a *Sphingonotus*, but it lacks the most characteristic feature of that genus—the constriction of the pronotum; the undeveloped elytra and thickened mesonotum and metanotum give it an altogether peculiar appearance. Though the specimens are all rather discolored by the spirit, it seems that their coloration when living has been essentially the same as it is now.

2. *Dicranophyma*, gen. nov.

♂. Resembling in its habitus to the New Zealandian genus *Paprides*, Hutt, and the Indian *Pileolum*, Bol.

Antennæ somewhat compressed, a little longer than the head and pronotum together. Head not prominent above the pronotum and not thicker than that. Face strongly oblique; frontal ridge elevated, in profile almost straight, flat, with a feeble impression below the ocellum, with the margins straight, feebly divergent downwards, very obtuse but nearly reaching the clypeus. Fastigium of the vertex forming distinct angle with frontal ridge, distinctly prominent before the eyes, but slightly shorter than broad, obtusely triangular; its surface very slightly impressed, with somewhat raised margins and with a low median carinula, which begins from the apex, but disappears in the occiput; vertex between the eyes twice as broad as the frontal ridge between antennæ. Eyes irregularly oval, their vertical diameter exceeding the horizontal one by about one-third of the latter; hind margin strongly rounded; fore margin almost straight; both upper and lower angles subacute. Pronotum above flattened; median keel low, but very distinct, straight in profile, cut by the typical sulcus;

prozona about twice as long as metazona; lateral keels irregular owing to some impressions alongside them, but quite distinct throughout (only in metazona somewhat obliterate), interrupted by two sulci; fore margin of the disc slightly convex; hind margin deeply angularly excised, the margins of the emargination distinctly convex; lateral lobes distinctly longer than high, narrowed downwards distinctly inflated in the upper part of the prozona; their fore margin convex; fore angle widely rounded; lower margin rotundato-angulate in the middle; hind angle very obtuse and widely rounded; hind margin very oblique and slightly concave. Prosternal tubercle transverse, with two conical apices directed obliquely outwards. Mesosternal lobes distinctly broader than long, with inner angles rounded; mesosternal interspace a little broader than long, distinctly widened backwards. Metasternal lobes distinctly separated. Elytra lateral, oval, coriaceous, with only two longitudinal veins, while all other veins and veinlets are obliterate. Wings not developed. Tympanum large, open. Mesonotum, metanotum and abdomen with a low median keel. The last abdominal segment with two teeth. Supraanal plate triangular. Cerci shorter than supraanal plate, laterally compressed, triangular. Subgenital plate small, compressed laterally, with the apex conical, somewhat recurved. Fore and middle femora short, distinctly incrassate. Hind femora somewhat incrassate, but only feebly dilated, extending well beyond the apex of the abdomen. Hind tibiae rounded, distinctly incrassate apically, armed with eight spines both inwardly and outwardly, without an outer apical spine; inner spurs are longer than the outer ones; the outer lower spur is the smallest of all.

Genotype: *Dicranophyma kingstoni*, sp. n.

Dicranophyma kingstoni, sp. n.

♂. Olivaceous, moderately rugose. Face greenish-grey, smooth; frontal ridge sparsely, but rather coarsely punctured; the sides of the fastigium, between the bases of antennae, eyes and lateral margins of frontal ridge, black; head from above with indefinite brownish fasciae; postocular fasciae black, narrowed posteriorly. Pronotum with the disc olivaceous, dull, but the keels and raised rigles are shining; prozona with but few, rather indistinct, though large, impressions; metazona rugulose; lateral lobes of a lighter shade than the disc, shining, in metazona somewhat rugulose; prozona with two oval impressions just below the lateral keels, below the impressions inflated, with large oblique black spot touching the lateral keels between the sulci and extending a little beyond the hind sulcus. Metanotum and first tergite with irregular longitudinal rugosities, olivaceous and dull on the upper side, black and shining laterally; the upper part of mesopleura and metapleura shining black, the lower yellowish green. Abdomen dull olivaceous from above, muddy yellow from beneath, with the sides of 2-5 segments reddish. The teeth of the last abdominal segment triangular, broadly separated; supraanal plate longer than broad; its basal half with a shallow median impression and two indistinct lateral impressions. Fore and middle legs olivaceous. Hind femora olivaceous, with an yellowish ring before the knee which is black all over; the inner and lower sides are reddish. Hind tibiae red, with the very base black and with a post-basal yellowish ring; the tips of spines brown. Hind tarsi reddish olivaceous.

Length of the body 17 mm.; pronotum 4 mm.; elytra 4 mm.; hind femora 10 mm.

The type is unique; it has been captured (13.9.1913) by that enthusiastic explorer of Kashmir, Capt. R. W. C. Kingston, in the Astor District, 9,000 feet, and I am greatly pleased to have the opportunity of naming such an interesting insect after him.

It is not easy to find a proper place in the system for this insect and the above mentioned New Zealandian genus *Paprides* and Indian *Pileolum* seem to be its nearest, though by no means close, relatives. There are now three Central Asiatic Alpine wingless genera, belonging to the group *Catantopinae* (*Acridiinae*): *Conophyma*, Zub., *Paraconophyma*, Uvar.* and *Dicranophyma*, Uvar., and the last named is easily distinguished from two others because it belongs to the different section, without an outer apical spine on the hind tibiae.

Sub-family: *Tettigoniidae*.

3. *Hyphinomos*, gen. nov.

♀. Related to the Palearctic genera *Amphiestris* and *Onconotus* but strongly differing from both in a number of characters.

Antennae longer than the body, setaceous, with rather dense short hairs; first joint thickened. Head short and thick, globose. Face vertical, convex, very broad, smooth. Fastigium of the vertex produced in the shape of a truncate tubercle, shallowly sulcate. Eyes small, but very prominent, perfectly round; their lower margins on the same line with the bases of the antennae. Occiput broad, globose, smooth. Pronotum distinctly broader than long; rugose: its disc scarcely convex near the fore margin, feebly, but distinctly, impressed behind the middle, with the hind margin slightly ascendent; one feeble transverse sulcus at the end of the fore fourth of the disc; fore margin slightly concave; hind margin straight; all keels absent; lateral lobes very uneven, strongly rugose, with lower margins raised and a rather deep sub-marginal impression, the bottom of which is finely longitudinally rugulose; hind part of lobes forming a straight, though widely rounded angle with the surface of the disc; general form of the lobes elongato-triangular, the fore margin being straight and slightly oblique, fore angle obtuse, rounded, lower margin in its fore part convex, then ascending obliquely to the shoulder, so that there is no separate hind margin. Prosternum with two small, obtuse widely separated tubercles. Mesosternum and metasternum transverse, thickened, without separated lobes. Elytra lateral, round. Cerci short, conical. Subgenital plate rather thick, transverse, slightly emarginate at the apex. Ovipositor thick, broad, feebly recurved in the apical third, with the disc longitudinally rugulose towards the apex. Fore coxae armed with a strong, somewhat decurved spine. Fore femora short, rather thick, not armed. Fore tibiae thick, somewhat constricted in the middle, armed with an outer upper subapical spine and with six strong spines on each side of the lower side. Middle legs armed as the fore legs. Hind femora only twice as long as the middle femora, not reaching the apex of the abdomen (if the latter is not contracted); their basal half feebly incrassate; the apical half bearing 8-10 spinules along each of the lower carinae. Hind tibiae thick, slightly decurved; all their keels obtuse, except the inner upper one, which is distinctly raised, rather sharp and armed with about 10 spinules; outer upper keel with about 8-10 small spinules; the lower side with 4 inner and about 7 outer longer spines; two pairs of short spurs, the lower pair being shorter than the upper one. All tarsi depressed, strongly bisulcate; hind tarsi without moveable plantulae.

Genotype: *Hyphinomos fasciata*, sp. n.

Hyphinomos fasciata, sp. n.

♀. Head smooth, sparsely and finely punctured in the middle of the face and with two irregular rows of punctures on the occiput; face whitish, with a black transverse fascia along the upper margin of the clypeus; another shining black fascia runs across the bases of antennae, apex of the fastigium and eyes,

* Ann. Mag. Nat. History, Ser. I, vol. VII, p. 497, 1921.

reaching the pronotum and widening behind the eyes. Antennæ black. Pronotum reddish-brown ; lateral lobes margined with black. Mesopleuræ, meta-pleuræ and all coxæ on their upper side black. Abdomen smooth, brown. Elytra reddish-ochraceous. All legs brownish-olivaceous ; hind femora with the base of the inner side and the lower sulcus black. Ovipositor brownish, with the upper margin black.

Length of body 22 mm., pronotum 5 mm. ; elytra 2 mm. ; hind femora 11 mm. ; ovipositor 12 mm.

Described from three females (type and two paratypes) from Dakar, Western Tibet, 15,000—16,000 feet. 23rd August 1905. T. G. Longstaff.

This is a very peculiar insect, occupying a rather isolated position amongst its relatives, which are the Western Mediterranean genus *Amphiestris* and the Siberian *Onconotus*. The male is unfortunately unknown, but there is no doubt that it has the elytra more developed than the female, and transformed completely into a sounding apparatus ; it is not impossible that its pronotum is also modified. I do not know any other records of Orthoptera from such an extraordinary high altitude as this one.
